

In the Claims

A complete listing of the claims follows immediately hereinafter.

1. (currently amended) A plasma reactor system at least for use in removing an implant crust that is formed as an outermost layer of a photoresist pattern that is supported by a process material crust from a treatment object, said implant crust being formed responsive to exposure of the treatment object to a high dose ion implant which introduces an implanted dopant into the treatment object as well as into the photoresist, thereby producing said implant crust, said system comprising:

a treatment chamber within which a plasma is generated using a hydrocarbon gas in combination with oxygen gas in a way which subjects the process material implant crust to the plasma for use in removal of the process material implant crust, said plasma being free of halogens, at least to an approximation.

2. (original) The system of claim 1 wherein said hydrocarbon gas produces low molecular weight radicals in said plasma.

3. (original) The system of claim 2 wherein said low molecular weight radicals include a molecular weight of less than approximately 30.

4. (original) The system of claim 2 wherein said radicals include at least one of CH<sub>2</sub> radicals and CH<sub>3</sub> radicals in the plasma.

5. (canceled)

6. (currently amended) The system of claim 5 wherein said process material implant crust overlies an unaltered region of said an original photoresist layer and said plasma formed using said hydrocarbon gas in combination with oxygen is used to remove said unaltered region of photoresist.

7. (currently amended) The system of claim 6 wherein said process material implant crust and said unaltered region of said original photoresist layer are simultaneously removed using said plasma formed with said hydrocarbon gas in combination with oxygen gas.

8. (original) The system of claim 7 wherein said plasma is generated with downstream plasma generation means.

9. (original) The system of claim 1 wherein the treatment object is a semiconductor wafer.

10. (original) The system of claim 1 wherein said hydrocarbon gas is in a range of from approximately 15% to 85% of an overall mixture with the oxygen gas.

11. (original) The system of claim 1 wherein said hydrocarbon gas is methane.

12. (original) The system of claim 1 wherein 75% methane and 25% oxygen form an overall gas mixture.

13. (original) The system of claim 1 including an inductive coil for inducing power into the plasma at a power level